Center Innovation Fund: GSFC CIF

Replicated Thin Active Mirrors (GSFC)

Completed Technology Project (2015 - 2016)

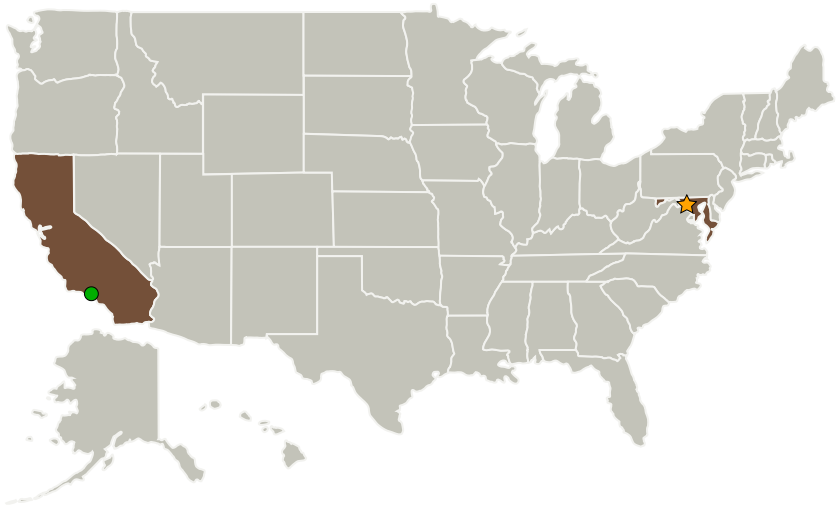
Project Introduction

We plan to partner with JPL and Caltech to produce initially 100 mm diameter mirror prototypes and move to 200 mm to demonstrate scalability. This will build off of active mirror work already done at JPL/Caltech over the last few years on 100 mm diameter prototype mirrors. The GSFC mirrors, extremely thin (0.2mm) and lightweight (0.5 kg/m2), will be improved through the use of quality slumped glass substrates that Goddard has the capability of producing. They should be fully diffraction-limited at 500nm wavelength. For this CIF, two diffraction-limited mirror substrates will be fabricated, tested, and shipped to JPL by September of 2016.

Anticipated Benefits

Potential use to the 2020 decadal survey as a means of implementing future extremely large space telescopes Near term users would be the Caltech team that is working on a technology demonstration satellite, named AAReST, which implements these mirrors in a small telescope system.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
California Institute of Technology(CalTech)	Supporting Organization	Academia	Pasadena, California
●Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

Primary U.S. Work Locations	
California	Maryland

Project Website:

https://www.nasa.gov/directorates/spacetech/home/index.html

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Innovation Fund: GSFC CIF

Project Management

Program Director:

Michael R Lapointe

Program Manager:

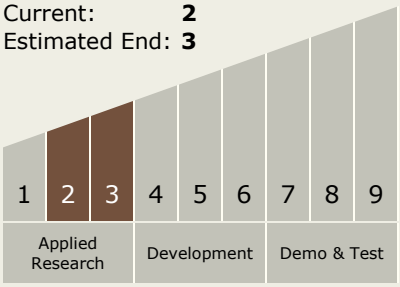
Peter M Hughes

Principal Investigator:

William W Zhang

Technology Maturity (TRL)

Start: **2**
Current: **2**
Estimated End: **3**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.2 Observatories
    - TX08.2.1 Mirror Systems